PROC. BIOL. SOC. WASH.
100(4), 1987, pp. 902–916

NEW AND LITTLE KNOWN PYCNOGONIDA FROM ANTARCTIC AND SUBANTARCTIC WATERS

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Abstract.—Five new species, *Ascorhynchus antipodus, A. cooki, Cilunculus spinicristus, Eurycyde antarctica,* and *Cheilopallene gigantea,* and one rare species, *Oropallene dimorpha* (Hoek), were sorted from various Antarctic collections taken from localities southwest of New Zealand, off the Antarctic Peninsula, and the Ross Sea. The new species are compared with known species of the genera and their distribution is given.

Many collections of Antarctic and Subantarctic pycnogonids have been deposited in the National Museum of Natural History both before and subsequent to Fry and Hedgpeth's (1969) partial treatment of the genera representing the last or most current monograph on the subject. Among the several thousand lots of pycnogonida sorted from bottom material, the five species described and figured here were found to be new to science. The five new species are *Ascorhynchus antipodus, A. cooki, Cilunculus spinicristus, Eurycyde antarctica,* and *Cheilopallene gigantea.* Another species, *Oropallene dimorpha* (Hoek), rarely recorded or figured in the literature, is refigured here with new capture records. So much effort has been expended in capturing and describing the pycnogonids and other taxa from Antarctic and Subantarctic waters that it might be thought remarkable that as any as five new species of Pycnogonida could be found to describe. To the contrary, the deeper waters around New Zealand, its Subantarctic islands, and those of Australia (Macquarie Island in particular), have had little collecting effort in comparison to the many expeditions that scoured the Ross Sea over the past 90 years. It is perhaps significant, then, that this report contains only one new species from the outer reaches of the Ross Sea, at the Cape Adare coast. It will be many years before it can be safely said that all is known of the Pycnogonida of the Ross Sea or of any other area of comparable size in the oceans of the world.

Family Ammotheidae Dohrn

Genus *Ascorhynchus* Sars, 1877

Ascorhynchus antipodus, new species

Fig. 1

Material examined.—Southwest Pacific Basin, E of the Antipodes Islands, 49°21′S, 172°16′W, 5340 m, coll. *Eltanin,* sta 25-366, 15 Nov 1966, holotype, female (USNM 233600).

Description.—Size moderately small, slender, leg span 20.4 mm. Integument closely papillose, imparting pebbled appearance. Trunk long, slender, posterior part of first three segments widely flaring, without median tubercles, narrowest diameter of trunk only half diameter of flared cowls. Lateral processes very short, only as long as their diameters, glabrous. Neck long, oviger implantation at half-length of neck, well anterior to first lateral processes. Neck armed with 2 conical anterolateral tubercles pointing obliquely above chelifore insertions. Ocular tubercle, sensory papillae and eyes entirely lacking. Proboscis slender, bipartite, without distal constriction, as long as first 2 trunk segments combined. Abdomen long, slender, glabrous, reaching almost to distal tip of second coxae of fourth legs.

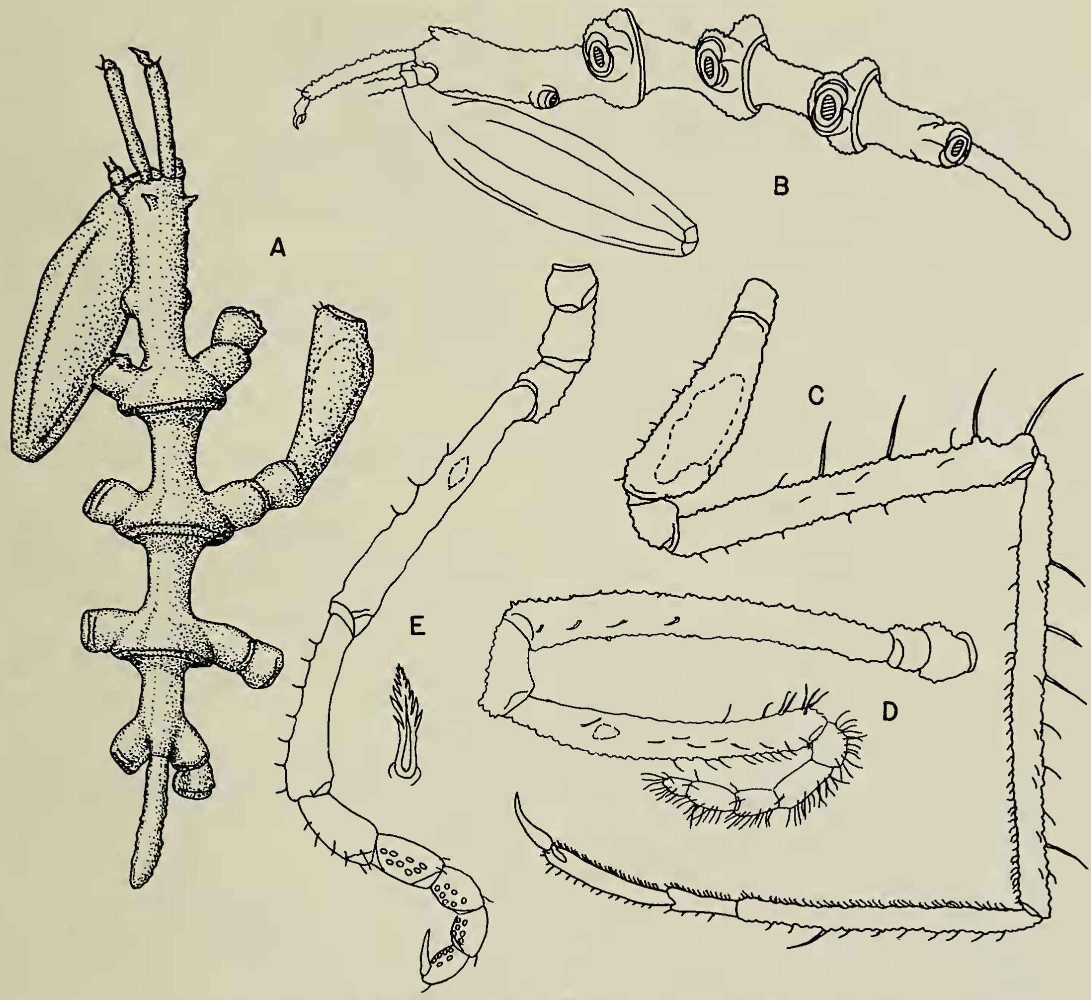

Fig. 1. *Ascorhynchus antipodus,* female holotype: A, Trunk, dorsal view; B, Trunk, lateral view; C, Third leg; D, Palp; E, Oviger, with enlargement of denticulate spine.

Chelifore scape of 1 segment cylindrical, slender, over 6 times longer than its diameter, armed with 2–3 short distal setae. Chela tiny, fingers fully formed, apparently functional, glabrous.

Palp segment 3 about 0.2 longer than segment 5, terminal 6 segments progressively more setose ventrally and laterally. Segment 6 equal in length to segments 8 and 9, segment 7 half again longer, segment 10 tiny, shorter and narrower than other terminal segments.

Oviger with few endal setae on major segments. Third segment longest, fourth only 0.6 as long, strigilis segments progressively shorter, armed with denticulate spines in 2 rows in distally progressing formula 8:7:6:6, with glabrous slightly curved terminal claw almost as long as terminal segment. Denticulate spines long, slender, with 5–6 denticles per side.

Legs moderately long, very slender, lightly spinose, with row of tiny setae on ventral tibiae and sole of tarsus and propodus. Second coxae long, almost 4 times length of first or third, swollen medially and distally with large number of ova. First tibiae longest of major segments with second tibiae shorter than femorae. Tarsus and propodus slender, tarsus half propodus length, both armed with very short setae. Claws moderately curved, all of equal length, 0.43 as long as propodus.

Male and juvenile characters unknown.

Measurements (in mm).—Trunk length (chelifore insertion to tip 4th lateral processes) 3.7; trunk width (across 2nd lateral processes) 1.24; proboscis length 2.2; abdomen length 0.91; third leg, coxa 1 0.3; coxa 2 1.18; coxa 3 0.31; femur 2.12; tibia 1 2.54; tibia 2 1.61; tarsus 0.4; propodus 0.78; claw 0.34.

Distribution.—Known only from the type locality, E of the Antipodes Islands, New Zealand, in 5340 m.

Etymology.—This species is named for the land nearest its place of capture, the Antipodes Islands.

Remarks.—This new species is sufficiently close to *Ascorhynchus bucerus* Turpaeva, from the northern Pacific, for them to form a geminate pair. The general habitus of the two is very similar and they were captured at approximately the same depth. The principal difference between them is that *A. bucerus* has 2-segmented scapes while this species has scapes of a single segment that are longer in relation to the trunk than those of *A. bucerus.* Palp segment 5 is subequal to segment 3 in *A. bucerus,* but segment 5 is 0.2 shorter than segment 3 in *A. antipodus.* Other differences are: *A. bucerus* has a palp terminal segment almost equal in length to the penultimate segment, the neck is longer in relation to other trunk segments, the oviger implant bulges are nearer the first lateral processes and in the posterior half of the neck, the abdomen is approximately equal in length to the fourth trunk segment, the tarsus is about 0.75 as long as the propodus, the femur is subequal in length to the second tibia, and in the oviger, segment 4 is shorter than segment 5. In *A. antipodus,* the palp terminal segment is only half as long as the penultimate segment, the neck is shorter, the oviger implant bulges are at the neck midpoint, the abdomen is longer than the posterior trunk segment, the tarsus is only half the length of the propodus, the femur is 0.2 longer than the second tibia, and oviger segment 4 is longer than segment 5.

The second coxae of this species, swollen with ova, are reminiscent of *A. ovicoxa* Stock, but the two species are otherwise quite dissimilar.

Placement and arrangement of the femoral cement gland aperture or apertures must await the capture of a male of this geminate new species.

Ascorhynchus cooki, new species
Fig. 2

Material examined.—Southwest Pacific, SW of Macquarie Island, 59°58'S, 155°31'E, 2985–2992 m, coll. *Eltanin,* sta 1964, 10 Feb 1967, holotype male (USNM 233601), 2 paratype females (USNM 233602).—N of Chatham Rise, New Zealand, 41°45'S, 178°05'W, 2610–2668 m, coll. *Eltanin,* sta 1711, 25 May 1966, 3 paratype females (USNM 233603).—SE of Cook Strait, New Zealand, 42°11'S, 175°11'E, 2612 m, coll. *Eltanin,* sta 25-371, 20 Nov 1966, paratype chelate juvenile (USNM 233604).

Description.—Size gigantic for genus, leg span 178 mm. Integument smooth, glabrous. Trunk slender, graceful, posterior of first 3 segments flaring into cowls having dorsomedian tubercles with rounded tips. Lateral processes twice as long as maximum diameters, without setae, with low dorsodistal tubercles rounded at tips. Neck long, oviger implantation directly ventral to ocular tubercle which is placed just posterior to median neck length. Ocular tubercle twice as long as diameter with anterior pair of eyes at median length, posterior pair of eyes more distal. Proboscis slender, tripartite, only as long as first trunk segment, mouth flat. Abdomen slender, extending only to distal rim of first coxae on fourth legs, glabrous, carried slightly ventral with distal half curved dorsally.

Chelifore scapes with 2 segments, armed

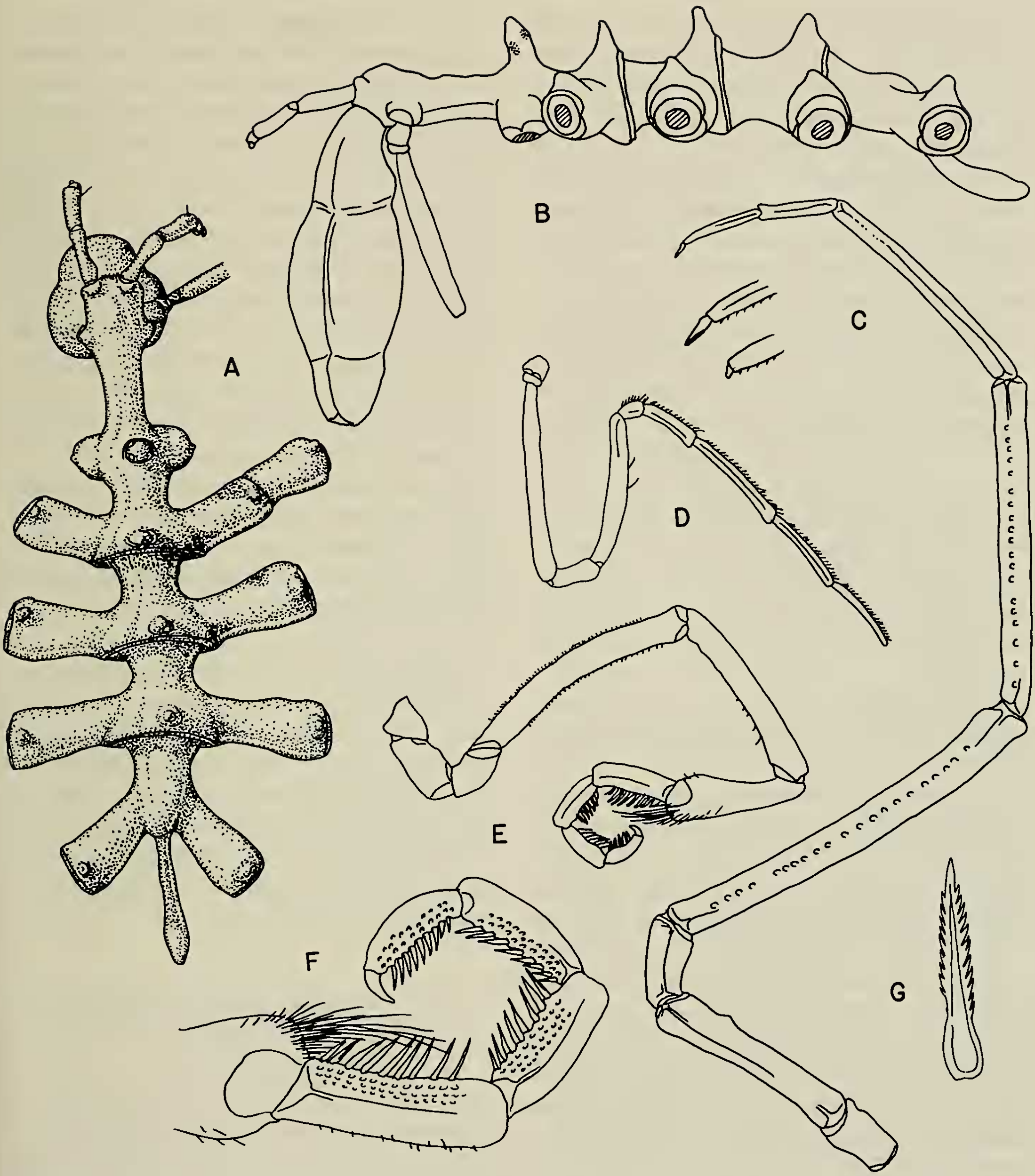

Fig. 2. *Ascorhynchus cooki,* male holotype: A, Trunk, dorsal view; B, Trunk, lateral view; C, Third leg, with enlargement of claws of first and third legs; D, Palp; E, Oviger; F, Oviger terminal segments, enlarged; G, Oviger denticulate spine, enlarged.

with 1–2 small distal setae. Scape segments subequal, slightly clubbed distally, short, each no longer than neck width. Chela tiny, vestigial, movable finger represented by tiny ventral bump, glabrous.

Palp third segment 3.5 times longer than fourth, terminal 5 segments very slender, numbered from shortest to longest; 6, 7, 10, 9, with 8 longest, all armed with ventral fringe of tiny setae.

Oviger segment 5 about 0.8 length of segment 4, both armed with tiny lateral setae.

Sixth segment clubbed distally, armed with distal fringe of short and long setae, some longer than segment diameter. Strigilis 4 segments increasingly shorter in length progressing distally, armed with 3–4 rows of denticulate spines, 1 row larger than lateral rows, larger row with formula 9:8:8:9, spines slender, with many lateral denticulations. Terminal claw well curved, short, only 0.35 length of terminal segment.

Legs long, slender, glabrous, femur longest segment with tibia 1 longer than tibia 2. Cement glands numbering 21–24 tiny pores on femur, 19–23 pores on entire length of tibia 1. Tarsus slender straight cylinder, subequal in length to slender slightly curved propodus, both armed with few tiny ventral setae. Claws of first pair of legs extremely tiny, only about 0.3 as long as other 6 claws, which only about 0.18 propodal length, none curved. Sex pores only on posterior 4 second coxae.

Female slightly larger, oviger without long setae and with fewer denticulate spines. Sexual pores on all second coxae.

Measurements (in mm).—Holotype: trunk length (chelifore insertion to tip 4th lateral processes) 25.5; trunk width (across 2nd lateral processes) 12.5; proboscis length 16; abdomen length 6; third leg, coxa 1 4.0; coxa 2 10.5; coxa 3 4.75; femur 20.5; tibia 1 22.0; tibia 2 12.5; tarsus 4.0; propodus 4.0; claw 0.75; claw of first legs 0.2.

Distribution.—Known from the type locality, the SW Pacific, SW of Macquarie Island, in 2985–2992 m, and from N of the Chatham Rise and off Cook Strait, New Zealand, in 2610–2668 m.

Etymology.—The new species is named for the great Pacific explorer, Captain James Cook.

Remarks.—This species is very close to *Ascorhynchus armatus* (Wilson), as will be seen in the following key of the five giant species known to this genus. Were it not for the very widely separated collecting localities for this new species (SW Pacific) and those of *A. armatus* (N. Atlantic), I would be more inclined to attribute the differences among the two species as possible variations within a single species. Male cement gland(s) have proved to be a stable character in most genera and form a good diagnostic element. The cement gland pores in *A. armatus* appear to be consistently greater in number (53–90) than those of *A. cooki* (40–47). With only a single male on which to count the pores, the number is within a narrow range and will probably form a wider range when more specimens of this deep-living giant become available. I believe the few differences, including trunk and lateral process tubercle dissimilarities, between the two species are sufficient to keep them as separate species until it can be established whether or not *A. armatus* inhabits the Pacific and if there are transitional specimens bridging the differences enumerated in the key.

The five giant species known to this genus all share the following characters; trunks with median dorsal tubercles, long abdomina, 2-segmented scapes, many cement gland pores on multiple leg segments, a tarsus almost as long or equal to the propodal length, and trunks at least 13 mm long or greater. Measurements will, of course, vary among specimens of any one species.

Key to the Giant Species of the Genus *Ascorhynchus*

1. Eyes present, however small; trunk length over 15 mm 2
– Eyes lacking; trunk length slightly over 13 mm .... *A. glaber* Hoek
2. Lateral processes smooth, without tubercles 3
– Lateral processes with tubercles of any size 4
3. Tarsus 0.8 propodal length; about 22 cement gland pores on femorae, first tibiae; propodal claws equal in length; scape first segment shorter than second ....
.... *A. agassizi* Schimkewitsch

– Tarsus, propodus subequal; about 45–54 cement gland pores on femorae, first tibiae; first legs propodal claws shorter; scape first segment longer than second . . *A. japonicus* Ives

4. Lateral process tubercles tall, without setae; scape segments almost equal; ocular tubercle twice taller than basal diameter; chelifores almost glabrous, with few very short setae 5

– Lateral process tubercles tiny, processes with lateral setae; first scape segment only 0.5–0.6 length of segment 2; ocular tubercle no taller than base width; chelifores with some setae as long as segment diameters . . . . *A. pararmatus* Stock

5. Femorae with 21–24 cement gland pores, 19–23 on first tibiae; tarsus, propodus subequal in length; trunk, lateral process tubercles rounded at tips; third palp segment 3.5 length of fourth . . . .*A. cooki,* new species

– Femorae with 33–50 cement gland pores, 20–40 on first tibiae; tarsus 0.8 propodal length; trunk, lateral process tubercle tips pointed; third palp segment 4 times longer than fourth . . . . *A. armatus* (Wilson)

Genus *Cilunculus* Loman, 1908

Cilunculus spinicristus, new species

Fig. 3

Material examined.—N of Antipodes Islands, New Zealand, 49°40′S, 178°53′E, 476–540 m, coll. *Eltanin,* sta 27-1851, 3 Jan 1966, holotype male (damaged), USNM 233605.

Description.—Size moderately large, leg span slightly over 30 mm. Trunk robust, fully segmented, armed with 6–8 short spines on posterior rims of each raised segment. Lateral processes separated by slightly more than their diameters, as long as twice their diameters, armed with several short anterolateral, posterolateral, and dorsodistal spines. Anterolateral rim of first segment armed with 2 short spines per side. Neck broad, short, ovigers implanted at narrowest part. Neck flaring widely at anterior around chelifore insertion. Ocular tubercle implanted at midpoint of anterior neck broadening, over twice as tall as wide, with short truncate cone at tip, without eyes. Proboscis large, bulbous, without hint of distal or proximal segmentation lines, but with distinct longitudinal segmentation lines. Abdomen moderately long, slightly swollen distally, armed with 3 dorsodistal short setae, carried almost horizontally, slightly longer than distal rims of 4th leg second coxae.

Chelifore scape 1-segmented, broad, little longer than wide, with hint of segmentation line at proximal constriction, armed with few short distal setae. Chela vestigial, with distal cleft and knobs giving hint of fingers, unarmed.

Palp slender, first segment only slightly longer than wide, second segment longest, 0.25 longer than fourth, both armed with few lateral and dorsodistal setae. Third segment half length of fourth, armed with distal fringe of few short setae. Terminal segments each shorter than last, armed with ventral fringe of setae longer than segment diameters.

Oviger long, slender, armed with very few short setae. Second segment 0.75 as long as fourth, the longest. Fifth segment only slightly shorter than second. Strigilis 5 segments with few short setae, those of seventh and eighth segments longer than segment diameters. Denticulate spines only present on ninth and tenth segments; 1 on ninth, 2 on tenth, spines broad, with 7–8 lateral denticulations.

Legs moderately long, spinose. Coxae with few short lateral and dorsodistal spines, femur with many ventrally. Cement gland tube long, equal to segment diameter, placed just proximal to dorsodistal tip of femur, pointing distally, not elevated. First tibiae only slightly longer than femorae, second tibiae

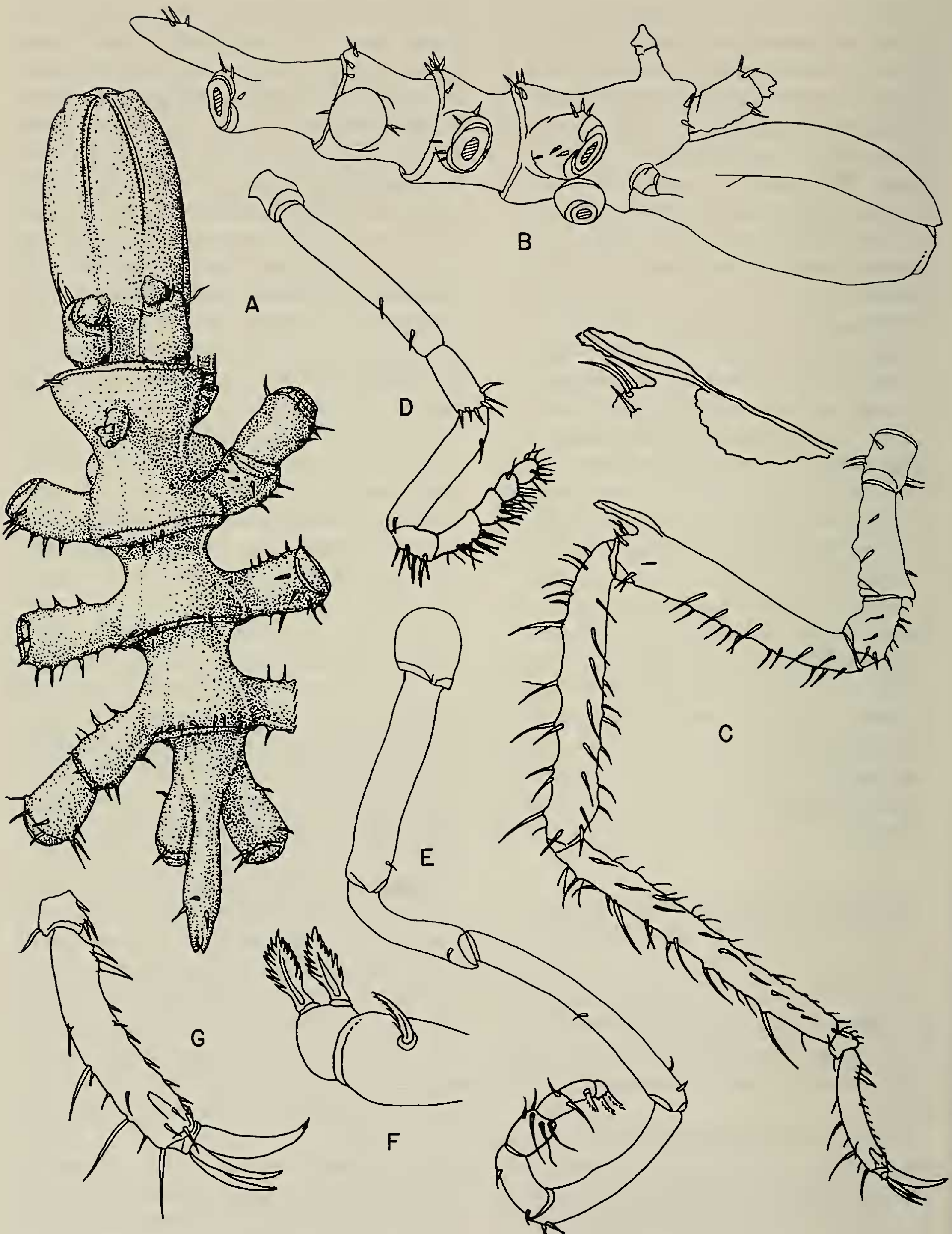

Fig. 3. *Cilunculus spinicrista,* male holotype: A, Trunk, dorsal view; B, Trunk, lateral view; C, Third leg, with cement gland and duct enlarged; D, Palp; E, Oviger; F, Oviger terminal segments, enlarged; G, Third leg terminal segments, enlarged.

longest, both armed with many lateral, dorsal, and ventral setae, few slightly longer than segment diameters. Tarsus very short, propodus over 5 times longer, well curved, armed with 2 heel spines and 6–7 very short sole spines, dorsally with several setae, 3 longer than propodal diameter. Claw robust, strongly curved only at tip, almost half propodal length. Auxiliary claws slender, moderately curved, 0.75 length of main claw. Sex pores on second coxae of posterior 2 pairs of legs.

Female and juvenile characters unknown.

Measurements (in mm).—Trunk length (chelifore insertion to tip 4th lateral processes) 3.98; trunk width (across 2nd lateral processes) 2.53; proboscis length 2.64; abdomen length 1.38; third leg, coxa 1 0.53; coxa 2 1.2; coxa 3 0.73; femur 2.8; tibia 1 2.88; tibia 2 3.49; tarsus 0.24; propodus 1.34; claw 0.58.

Distribution.—Known only from the type locality, N of the Antipodes Islands, New Zealand, in 476–540 m.

Etymology.—The new species name is a compound of the Latin *spina* and *crista,* referring to a spiny crest or ridge in reference to the spines on each of the median dorsal trunk ridges.

Remarks.—This new species differs from all other known *Cilunculus* species by the presence of the row of spines on the posterior rim of each trunk segment which lack any form of tubercles, the blind, moderately long, cylindrical ocular tubercle with a short blunt conical tip, the very broad, short chelifore scapes, the long, tenuous oviger, the very spiny legs, and the cement gland tube at the dorsodistal end of each femur, pointing distally instead of well elevated as in many species. The combination of these characters is not found in any other known species although the characters, taken separately, are not unique except perhaps the strong spines on the posterior trunk rims of the new species.

The genus is found worldwide in widely scattered localities with only a single species, *C. sewelli* Calman, known to have much breadth of distribution (E. Africa to New Zealand). Unfortunately, most species are known only from a type or type-lot, which is the case for many deep-water species and genera of pycnogonids. The majority of *Cilunculus* species are known from the Southern Hemisphere while several are known from Japan, the Caribbean, Bay of Biscay, and the English Channel. The southernmost records are for *C. cactoides* Fry and Hedgpeth, from the Ross Sea, Antarctica.

Cilunculus is a deeper water, more slender counterpart of the shallower genus *Ammothella,* and indeed, several of the species have been confused between these genera, while one or two have been described as species of other genera. As Fry and Hedgpeth (1969:124) declared, "At best, *Cilunculus* is an uneasy genus." Most writers including this one have thought it best to retain the genus as a separate entity while avoiding specific names that could become homonyms in a future generic or family revision.

Genus *Eurycyde* Schiödte, 1857

Eurycyde antarctica, new species

Fig. 4

Material examined.—E of Adare Peninsula, Ross Sea, Antarctica, 72°00′S, 172°28′E, 523–528 m, coll. *Eltanin,* sta 1997, 10 Jan 1968, holotype male, USNM 233606, paratype female, USNM 233607; NE of Cape Adare, Ross Sea, 71°17′S, 171°33′E, 659–714 m, coll. *Eltanin,* sta 1870, 14 Jan 1967, paratypes, 1 female, 1 juvenile, USNM 233608.

Description.—Size typical for genus, leg span slightly over 10 mm. Trunk robust, glabrous, completely segmented, each segment inserted anteriorly into swollen cowl of posterior of first 3 segments. Lateral processes moderately short, only 1.5 times as long as wide, separated by their diameters, armed with short, narrow, dorsodistal tubercles only half as tall as segment diameters, without setae or spines. Ocular tubercle

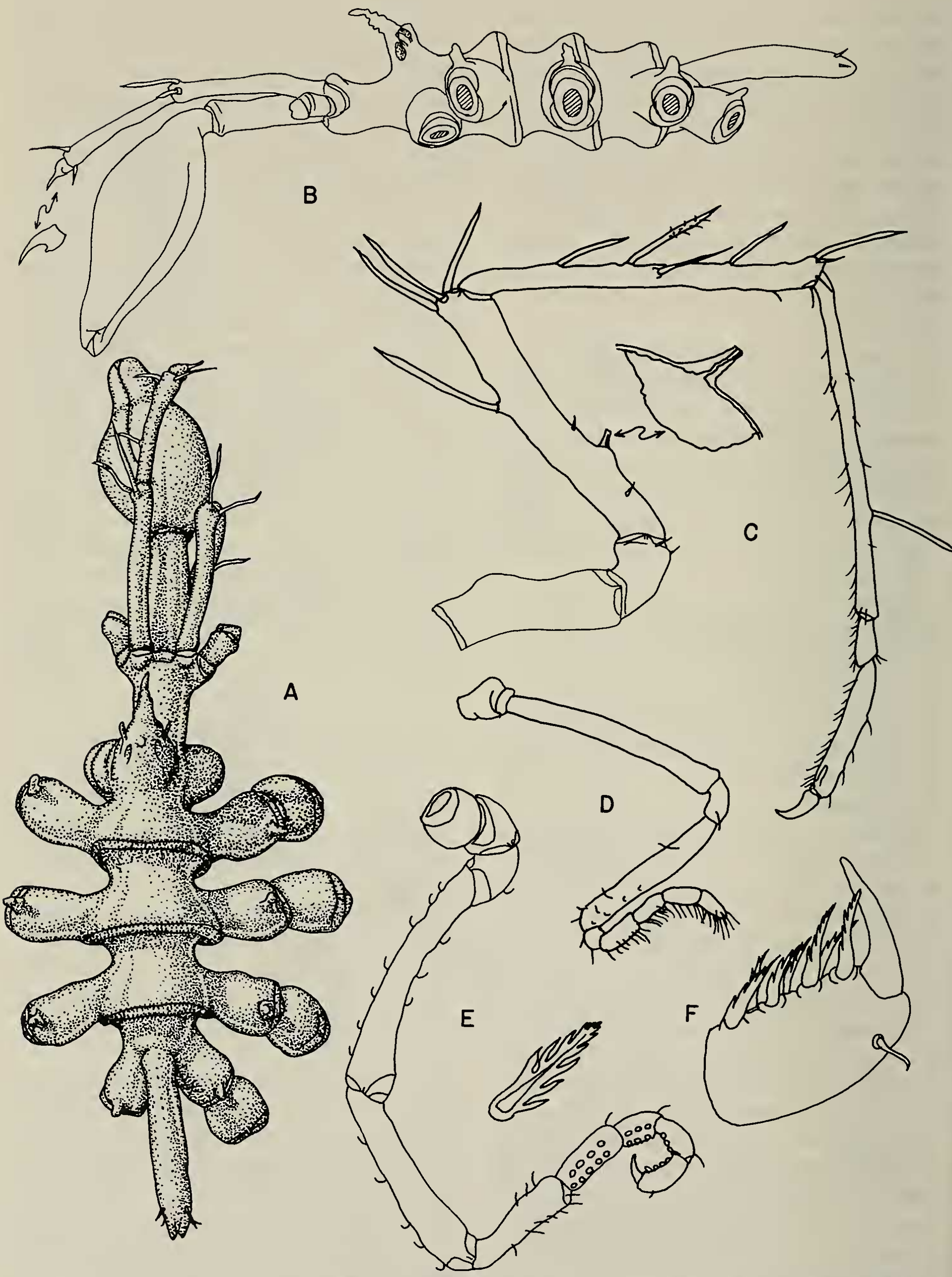

Fig. 4. *Eurycyde antarctica,* male holotype: A, Trunk, dorsal view; B, Trunk, lateral view; C, Third leg with cement gland tube enlarged; D, Palp; E, Oviger, with denticulate spine enlarged; F, Oviger terminal segment, enlarged.

with broad base tapering to slender anterior-pointing tip, glabrous, with lateral sensory papillae projecting as tiny slender tubercles, eyes darkly pigmented, of equal size, posterior pair placed distally to anterior more proximal pair. Oviger implantation directly ventral to ocular tubercle, at midpoint of first trunk segment. Proboscis of typical 2 segments, proximal segment cylindrical, half distal segment length. Second segment carried ventrally from narrow attachment to first segment, swollen at midlength, ovoid, with very narrow pointed mouth. Abdomen cylindrical, tapering distally, as long as midlength of second coxae of fourth legs, armed distally with 4 short setae, without long spines.

Chelifore scape 2-segmented, slender, long, extending to midlength of second proboscis segment, armed with 2–3 long broad spines on first segment which is 0.2 times longer than second segment. Second segment armed with 2–3 long spines similar to those of first segment. Chela tiny, with short, broad, curved immovable finger and tiny bud as movable finger, glabrous.

Palp 9-segmented, second segment longest, about 0.3 longer than fourth segment. Fifth segment shortest, not longer than wide. Terminal 5 segments subequal in length to fourth, terminal 4 with fields of ventral setae equal to or slightly longer than segments.

Oviger fairly long, major segments armed with few short, lateral, recurved setae. Fifth segment 0.85 as long as fourth, sixth half length of fifth. Strigilis 4 segments each shorter than last, armed with distal ectal seta each and 2 rows of endal denticulate spines in the formula (counting both rows), 9:6:5:7, with almost straight terminal claw lacking teeth. Denticulate spines narrow, with 5–6 denticles per side.

Legs slender, major segments each narrower than last distally, armed with few very long broad spines and several long pointed spines, with 1–2 pointed spines on tibiae having setules or "feathered." First coxae without tubercles of any description. Tibiae subequal in length, femorae slightly shorter. Cement gland a small swelling proximally, at 0.25 femur length, with short tube pointing obliquely anterior and distally. Tarsus 0.33 length of propodus. Propodus very slightly curved, without heel or heel spines, armed with many short sole spines. Claw broad, well curved, less than 0.3 propodal length, no auxiliaries.

Female slightly larger in most measurements. Legs with several more feathered sharp spines. Ova carried in very swollen second coxae, none found in femorae. Ocular tubercle with short blunt anterior tubercle half as tall as that of male. Neck shorter than male's, and lateral process tubercle shorter and broader based.

Measurements (in mm).—Trunk length (chelifore insertion to tip 4th lateral processes) 1.33; trunk width (across 2nd lateral processes) 0.86; proboscis length (second segment only) 0.84; abdomen length 0.55; third leg, coxa 1 0.23; coxa 2 0.56; coxa 3 0.25; femur 0.95; tibia 1 1.0; tibia 2 1.0; tarsus 0.14; propodus 0.43; claw 0.12.

Distribution.—Known only from its type locality, off Cape Adare and its Peninsula, Ross Sea, in 523–714 m.

Etymology.—This species is named for the Ocean in which it was collected.

Remarks.—Of the nine or ten recognized species of *Eurycyde,* this is the first known to have the following combination of characters; no ocular tubercle spines or setae, and no tubercles on the first coxae. It is also the first species of the genus to be found in Antarctic waters. Most known species are from tropical or at least tropical-temperate habitats. The only cold water species known was the first to be described; *E. hispida* (Krøyer), distributed from eastern Canada to the western Russian Arctic. This new species and *E. hispida* could be classified as the 'conservative' element of this genus because they both lack the long ocular tubercle spines and the spinose first coxae tubercles of many other species. The new species has very few long broad spines on any appendage, in contrast to the many spines on most species. The cement gland bulge and tube of the new species are smaller than those of most species where the male gland is known, and is close to those of *E. hispida.* This new species differs from any other, including *E. hispida,* in having much less spinose appendages and very different lateral process tubercles in a genus where most species have very slender pointed tubercles or none at all. All species of this genus are closely allied in characters such as oviger, palp, chelifore, and terminal leg segment lengths and shapes. No known *Eurycyde* species has the long pointed ocular tubercle without spines or setae present in this new species.

Family Callipallenidae Hilton
Genus *Cheilopallene* Stock, 1955
Cheilopallene gigantea, new species

Fig. 5

Material examined.—E of Antarctic (Palmer) Peninsula, Weddell Sea, Antarctica, off Larsen Ice Shelf, 66°28′S, 57°26′W, 581–610 m, coll. *Hero,* sta 3-28D, 17 Aug 1970, holotype male, USNM 233609.

Description.—Size extremely large for genus, leg span 57.6 mm. Trunk moderately robust, segments slightly inflated, glabrous. Lateral processes short, less than twice as long as diameters, separated by less than their diameters, armed with 2–3 dorsodistal small setae. Neck moderately long, tapering anteriorly toward greatly inflated anterior at chelifore and proboscis insertion, armed with 4 dorsodistal setae over chelifore insertion. Ocular tubercle low, only slightly taller than width at base, tip rounded, eyes large, lightly pigmented, sensory papillae tiny. Tubercle placed toward posterior of cephalic segment, just anterior to first lateral processes and slightly posterior to midpoint of oviger insertion bulges. Proboscis typical, fairly short, proximal half cylindrical, inflated distally, tapering to moderately large petal-like lips, each semirectangular, covered with closely packed pilose setae. Abdomen short, extending barely to tip of 4th lateral processes, armed with 4–5 short distal setae.

Chelifores massive, single segmented scapes very large in diameter. Chelae palm almost globular, fingers typical, shorter than palm, with uneven ridges and bumps as dentition. Scape armed with few short setae, chelae with many short setae on distal palm and fingers.

Oviger fully formed, of 10 segments with strigilis. Third segment slightly longer than first two combined in length. Third through sixth segments armed with rows of short ventral and dorsal setae. Fourth and fifth segments slightly curved, fifth slightly longer than fourth, armed with dorsodistal tubercle not quite as tall as segment diameter, armed with 5–6 short setae. Sixth segment with dorsal and ventral fringe of short setae increasing in numbers distally. Strigilis segments subequal in length, fully formed, armed with few short ectal setae, row of endal denticulate spines in formula 19:19:18:16, and terminal claw slightly over half length of terminal segment, bearing 23–24 short closely spaced endal setae. Denticulate spines of 2 lengths; proximal forms shorter with 3 proximolateral serrations and many tiny crenulations distally, and distal spines, longer, with 3–4 lateral serrations grading into many fine crenulations distally. Egg size slightly greater than maximum diameter of widest segment.

Legs moderately setose with short setae, none as long as segment diameter, increasing in numbers on major distal segments. Tibia 2 longest segment, femur and tibia 1 subequal, second coxae slightly longer than first and third combined. Femur with 4 tiny slightly raised cement gland pores evenly spaced along length of segment. Tarsus short, about 0.22 length of propodus, armed with tuft of short ventral setae. Propodus slightly curved, without marked heel, with 4 large heel spines increasing in size distally from proximal smallest. Sole armed with many very short setae and short flanking setae.

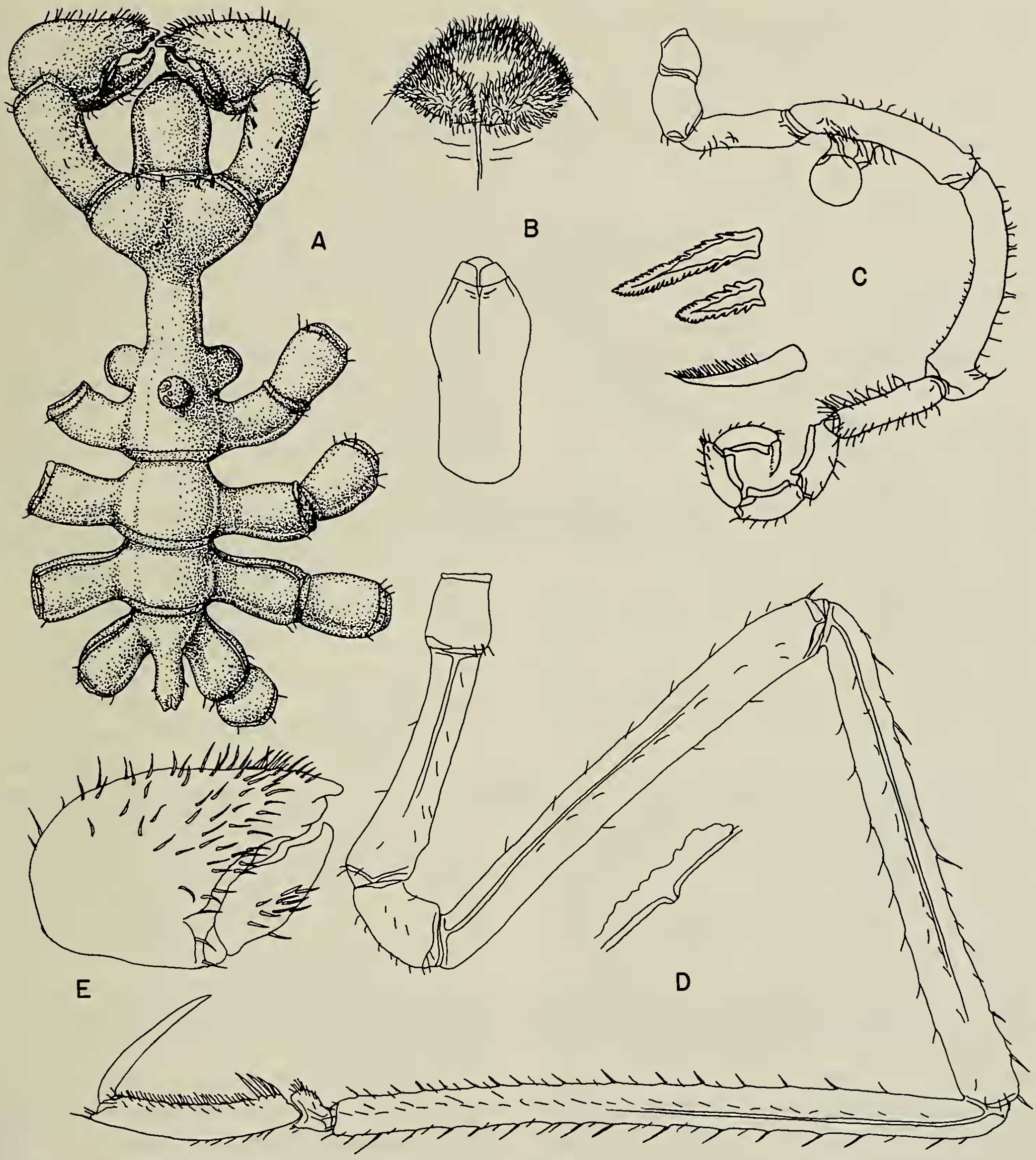

Fig. 5. *Cheilopallene gigantea,* male holotype: A, Trunk, dorsal view; B, Proboscis, ventral view, with lip setae removed (below), lips with setae (above); C, Oviger, with enlargements of distal and proximal denticulate spines and terminal claw; D, Third leg, with one cement gland pore enlarged; E, Chela.

Propodus tip slightly projecting. Claw long, slender, slightly curved, about 0.7 as long as propodus. Without auxiliary claws.

Measurements (in mm).—Trunk length (chelifore insertion to tip 4th lateral processes) 5.46; trunk width (across 2nd lateral processes) 3.08; proboscis length 1.62; abdomen length 0.58; third leg, coxa 1 1.02; coxa 2 2.62; coxa 3 1.22; femur 5.38; tibia 1 5.46; tibia 2 7.32; tarsus 0.48; propodus 2.15; claw 1.62.

Distribution.—Known only from the type locality, off the Larsen Ice Shelf on the east side of the Antarctic (Palmer) Peninsula, Antarctica, in 581–610 m.

Etymology.—This giant (Latin: *gigantea*) new species is named for its size which is at least four times larger than any other known species of the genus.

Remarks.—The enigmatic genus *Cheilopallene* now contains four known species, including this new species; *C. brevichela* Clark (Maldives), *C. clavigera* Stock (U.S. Virgin Islands), and *C. trappa* Clark (Snares Islands, New Zealand). Three of these four species have normal ten-segmented ovigers with a strigilis bearing denticulate spines, while the type of the genus, *C. clavigera* (Stock, 1955:230–233), has an elongate fifth oviger segment that is clubbed distally. A tiny sixth segment extends beyond this swollen tip and represents all that remains of the strigilis. A series of males of this species must be examined to discern whether or not this is the natural state of the oviger.

This abbreviated oviger appears also to be the natural form in many specimens of another genus erected to emphasize this character. Pushkin (1974:938–940) removed Hodgson's (1915) *Pallenopsis spicata* from that genus and placed it in his genus *Clavigeropallene,* because it bears seven oviger segments in the male (instead of the usual ten), with the sixth broadly clubbed, and lacks a strigilis. This oviger modification appears to be neither a localized distributional feature nor a monotypic malformation due to damage and subsequent regeneration in a number of specimens (Hodgson 1915, Calman 1915, Hodgson 1927, Gordon 1938). Instead, it is probably another apomorphic character in a group of genera that are undergoing rapid change and dissemination from areas of origin in the Southern Hemisphere. It appears that many and perhaps even the majority of genera (now numbering 24 or 25) in the family Callipallenidae had their origins in that hemisphere and have reached their present known distribution patterns through unknown means of transport. Without a planktonic larval stage or other means of active transport, many species are localized or endemic and their dissemination in the oceans of the world is probably quite slow. The distribution of most callipallenid genera is poorly known to fragmentary at best, as is true for most pycnogonids, but the majority of species in these genera have been taken in Southern Hemisphere localities or at least near the equator in Indo-Pacific localities. From this distributional evidence, Australia and South Africa are the two focal points of dissemination among the majority of genera in this family, with Antarctic polar seas containing a wealth of species with characters crossing many generic lines. This inevitably points toward a Gondwanaland land mass for the origins of the protofamily that lead to the many genera now extant, but without a valid geological record to support such an hypothesis, it must remain conjecture.

This species differs from the three others known, in addition to its very much larger size, by having much shorter lips covered by a thick coat of setae. In the other species, the lips are narrower, longer, glabrous, and described as 'petal-shaped'. The proboscis and its parts are very characteristic in almost all pycnogonids and have long served as one of the valid diagnostic features. The lips of this new species are not typical of others in the genus which have small glabrous triangular lips, but are more characteristic of other species in genera having lip fringes or heavily setose oral surfaces such as some of the *Parapallene, Pallenoides,* and *Pseudopallene* species. The lip characters are species-specific and do not always serve as diagnostic characters for the genera in this family.

The chelae of the four species are remarkably similar and all have the uneven endal finger surfaces. The movable finger appears to fit into a pseudosocket toward the tip of the immovable finger, but the use of such an arrangement for feeding or defense can only be conjectural.

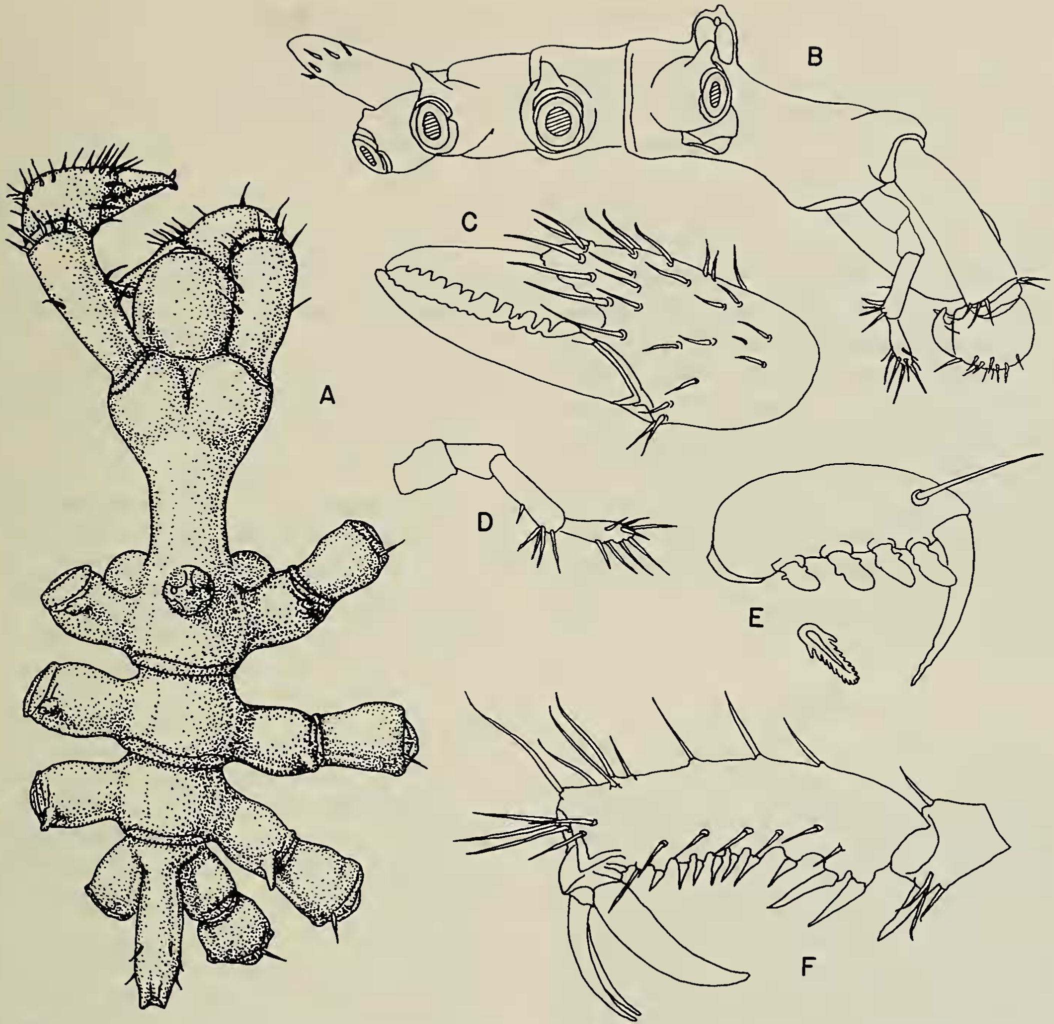

Fig. 6. *Oropallene dimorpha,* male: A, Trunk, dorsal view; B, Trunk, lateral view; C. Chela; D, Palp; E, Oviger terminal segment with distal spine enlarged; F, Third leg, terminal segments.

Genus *Oropallene* Schimkewitsch, 1930
Oropallene dimorpha (Hoek)
Fig. 6

Pallene dimorpha Hoek, 1898:290–293, pl. ii, figs. 1–6.

Oropallene dimorpha.—Schimkewitsch, 1930:245 [text], 291–292 [text].—Gordon, 1944:36.—Stock, 1954:29 [text].

Material examined.—NE of Macquarie Island, SW Pacific, 54°30′S, 158°59′E, 112–124 m, coll. *Eltanin,* sta 1974, 15 Feb 1967, 62 males with eggs, males, females, juveniles; same locality, 54°24′S, 159°01′E, 79–93 m, coll. *Eltanin,* sta 1417, 10 Feb 1965, 2 male juveniles.

Remarks.—These specimens constitute only the fourth and fifth capture records for this species, apparently not due to its rarity (62 specimens in one trawl sample above), but because of the scarcity of collections from the extremely inhospitable Kerguelen Islands (its type locality) and equally inhospitable Macquarie Island. Hoek (1898) described the species from 'few' specimens, while Gordon (1944) listed a female from Kerguelen and three juveniles from Macquarie which she attributed to this species.

To our knowledge, it is confined to the two areas in depths or 69–220 m.

The adult specimens have several marked differences from the type figured by Hoek. None of these specimens have the tall cone at the ocular tubercle apex, but instead have the tip rounded with a small papilla of varying size. Hoek's male specimen (Fig. 6) has a much smaller oviger terminal claw and more denticulate spines per strigilis segment. The type propodus is longer, has longer claws, and has a single large heel spine while these specimens have a shorter segment, shorter claws, and two heel spines. The second segment of the type palp is longer than the first while the reverse is the case with these specimens, but they are otherwise sufficiently like Hoek's figures and description to warrant classifying them as the same species.

Acknowledgments

I am grateful to the Smithsonian Oceanographic Sorting Center personnel who sorted and contributed the many thousand pycnogonid specimens to the National Museum, among which were the species described in this report. I am grateful to the invertebrate editor, Dr. T. E. Bowman, for making helpful suggestions for the improvement of this paper. The specimens are deposited in the National Museum of Natural History under U.S.N.M. catalog numbers.

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